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Date Printed: <b>07/06/2011</b>	Released: <b>02/22/2011</b> Rev. Num: <b>2.0</b>
Approved By: <b>Robin Smith</b>	

# GC/MS Sample Preparation

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## 1. Purpose and Scope

GC/MS is the "gold standard" for identifying drugs in samples submitted by Law Enforcement agencies.

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## 2. Definitions

<b>"Gold Standard"</b>	Definitive benchmark test
<b>GC/MS</b>	Gas Chromatograph/Mass Spectrometer

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## 3. Safety Instructions

Chemical Hazard

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## 4. Instructions

### 1. Sample Preparation

1. Dissolve an appropriate amount of sample in an appropriate solvent (ex. dichloromethane, methanol, etc.).
2. Add solution made in above step to a GC/MS autosampler vial.

In certain circumstances, a sample may need to undergo acid/base extraction. With chloroform as the extraction solvent, use 0.1N hydrochloric acid for the acid fraction then 2.5N sodium hydroxide to extract the scheduled substances.

### 2. Sequence Procedure for GCD Series II

1. With command line on, type MAC "RISEQ", g
2. Fill in sample information for each vial in your batch
  - make sure method is correct for each sample
  - include appropriate standard(s) in your batch
  - sequence automatically runs a blank between each sample
3. Click exit and save sequence as law.s
4. Run sequence by checking multiple samples

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## Instructions (Continued)

### 3. Sequence procedure for 6890N/5973MS (use law.s)

1. Under batch, click edit sample log table
2. Add sample information to log table for each vial in your batch
  - make sure method is correct for each sample
  - include appropriate standard(s) in your batch
  - sequence automatically runs a blank between each sample
3. Click OK when all samples are entered
4. Run sequence by clicking run/resume a batch under batch

### 4. Quality Control

To test instrument performance, an autotune with PFTBA is run at least once a week. If the autotune does not meet performance check criteria, measures must be taken to remedy the problem. No samples may run on an instrument that does not pass the autotune. Hard copies of the autotune are kept in a logbook adjacent to the instrument's workstation.

### Daily QC

NIST traceable primary standards are run in the same batch as samples to obtain a reference spectrum for comparison. A library search is also performed. Hardcopies of standards are retained in logbooks.

Instrument method parameters (oven programs, source and inlet temperatures, etc.) are saved in the run method software and can be viewed on the instrument's computer.

### 5. Instrument Maintenance

Preventative maintenance is provided by a third party service engineer on an annual basis. Records of this maintenance are retained in the laboratory.

Routine maintenance (inlet cleaning, changing columns, cleaning sources, etc.) is performed on an as-needed basis by trained analysts in the Forensic Chemistry laboratory. All maintenance, including the date the maintenance was performed and the initials of the analyst who performed the maintenance, is documented in the instrument's Maintenance Logbook.

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### 5. Notes

INTERPRETATIONS:

LIMITATIONS:

MISCELLANEOUS:

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### 6. FC-Instruments/Equipment/Materials

AutoSampler Vial

GC/MS

Separatory Funnel

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### 7. FC-Chemicals/Reagents

Chloroform

Dichloromethane

Hydrochloric Acid (HCl)

Methanol

Sodium Hydroxide (Pellets)

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### 8. Records

No records are created by this instruction.

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### 9. Policy References

Technical requirements	5
General	5.1

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### Policy References (Continued)

Test and calibration methods and method validation	5.4
Equipment	5.5
Measurement traceability	5.6
Sampling	5.7
Handling of test and calibration items	5.8
Assuring the quality of test and calibration results	5.9

## 10. Procedure References

Sample Plan - FC	PRO-FC-01
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## 11. Instruction References

NIST- Traceable Primary Standards (FC)	WI-FC-17
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## 12. Other Reference Documents

Chemical Hygiene Plan	PROXY-FSL-03
Laboratory Safety Manual	PROXY-FSL-08